

-43-

What I claim is:

1. A method for making arrays of a plurality of array members, comprising the steps of:
 - (A) providing a plurality of array members;
 - 5 (B) forming bundle members comprising the array members;
 - (C) assembling the bundle members to form a bundle in which the array members are aligned;
 - (D) sectioning the bundle to produce wafers that comprise an array of the array members.
- 10 2. A method according to claim 1, wherein the array members are cross-sectioned perpendicular to their alignment.
3. A method according to claim 1, wherein the array members are cross-sectioned at an angle of 10 to 80 degrees or 100 to 170 degrees to their alignment.
- 15 4. A method according to any of the foregoing claims, wherein the array members are cross-sectioned by a smooth planar cut.
5. A method according to any of claims 1 to 3, wherein the array members are cross-sectioned by a non-planar cut.
6. A method according to claim 5, wherein the surface area of array members exposed by cross-sectioning is increased over that provided by a smooth, planar cut.
- 20 7. A method according to claim 1, wherein array members are comprised of or are disposed within a plastic, a glass, a metal or a ceramic.
8. A method according to claim 7, wherein array members are comprised of or disposed within a glass.
9. A method according to claim 7, wherein array members are comprised of 25 or disposed within a plastic.
10. A method according to claim 9, wherein the plastic is a polycarbonate, polyethylene, polymethylmethacrylate, polystyrene, a copolymer of polystyrene, polysulfone, polyvinylchloride, polyester, polyamide, polyacetal, polyethyleneterephthalate, polytetrafluoroethylene or polyurethane.

-44-

11. A method according to claim 10, wherein the plastic is a polycarbonate, polyethylene, polystyrene, a copolymer of polystyrene, polysulfone or polyvinylchloride.

12. A method according to claim 1, wherein the array members are spaced about 1.0 to about 1,000 micrometers apart.

5 13. A method according to claim 1, wherein the array members have a cross-sectional area of about 1.0 to about 1,000,000 μm^2 .

14. A method according to claim 1, wherein the density of array members in the array is about 250 to about 2,500,000 array members per square centimeter of cross sectional surface area of the array.

10 15. A method according to claim 1, wherein the density in the array is about 10 to about 100,000 array members per square centimeter of total surface area at the assay.

16. A method according to claim 1, wherein there are about 100 to about 2,500,000 aligned array members.

15 17. A method according to claim 1, wherein there are about 100 to 2,500,000 different aligned array members.

18. A method according to claim 1, wherein cross-sectioning produces sections about 2.5 to about 2,500 micrometers thick.

20 19. A method for making arrays, comprising the step of cross-sectioning a plurality of aligned array members comprising at least two array members different from one another.

25 20. A method for making replica arrays, comprising repeatedly cross-sectioning a plurality of aligned array members to produce sections with at least one surface that exposes array members in the same disposition, thereby replicating the array.

21. A method for making arrays for detecting a plurality of analytes, comprising the steps of:

30 (A) providing a plurality of analyte binding reagents array members;
(B) forming bundle members comprising of or comprising the array members;

-45-

- (C) assembling the bundle members to form a bundle in which the array members are aligned;
- (D) sectioning the bundle to produce wafers that comprise an array of the analyte binding reagents.

5 22. A method according to claim 21, wherein the array members are cross-sectioned perpendicular to their alignment.

23. A method according to claim 21, wherein the array members are cross-sectioned at an angle of 10 - 80 degrees or 100 - 170 degrees to their alignment.

10 24. A method according to any of claims 21 to 23, wherein the array members are cross-sectioned by a smooth planar cut.

25. A method according to any of claims 21 to 23, wherein the array members are cross-sectioned by a non-planar cut.

15 26. A method according to claim 25, wherein the surface area of array members exposed by cross-sectioning is increased over that provided by a smooth, planar cut.

27. A method according to claim 21, wherein array members are comprised of or are disposed within a plastic, a glass, a metal or a ceramic.

28. A method according to claim 27, wherein array members are comprised of or disposed within a glass.

20 29. A method according to claim 27, wherein array members are comprised of or disposed within a plastic.

25 30. A method according to claim 29, wherein the plastic is a polycarbonate, polyethylene, polymethylmethacrylate, polystyrene, a copolymer of polystyrene, polysulfone, polyvinylchloride, polyester, polyamide, polyacetal, polyethyleneterephthalate, polytetrafluoroethylene or polyurethane.

31. A method according to claim 30, wherein the plastic is a polycarbonate, polyethylene, polystyrene, a copolymer of polystyrene, polysulfone or polyvinylchloride.

32. A method according to claim 21, wherein the array members are spaced about 1.0 to about 1,000 micrometers apart.

-46-

33. A method according to claim 21, wherein the array members have a cross-sectional area of about 1.0 to about 1,000,000 μm^2 .

34. A method according to claim 21, wherein the density of array members in the array is about 250 to about 2,500,000 array members per square centimeter of cross
5 sectional surface area of the assay.

35. A method according to claim 21, wherein the density in the array is about 10 to about 100,000 array members per square centimeter of total surface area of the array.

36. A method according to claim 21, wherein there are about 100 to about
10 2,500,000 aligned array members in the plurality.

37. A method according to claim 21, wherein there are 100 to about 2,500,000 different aligned array members in the plurality.

38. A method according to claim 21, wherein cross-sectioning produces sections about 2.5 to about 2,500 micrometers thick.

15 39. A method for making replica arrays, comprising repeatedly cross-sectioning a plurality of aligned array members to produce sections with at least one surface that exposes array members in the same disposition, thereby replicating the array.

20 40. A method for making replica arrays for detecting a plurality of analytes, comprising repeatedly cross-sectioning a plurality of aligned analyte binding reagent array members to produce sections with at least one surface that exposes array members in the same disposition, thereby replicating the array.

41. A method according to claim 21, wherein the array comprises analyte binding reagents that hybridize to DNA or RNA having specific nucleotide sequences.

25 42. A method according to claim 41, wherein the sequence specific binding reagents are polynucleotides, peptide-nucleic acids or polyamides.

43. A method according to claim 42, wherein the sequence specific binding reagents are oligonucleotides.

-47-

43. A method according to claim 21, wherein the array comprises analyte binding reagents that bind specific polypeptides.

44. A method according to claim 43, wherein the polypeptide-specific binding reagents are polyclonal antibodies, monoclonal antibodies, a single chain antibody, or an 5 antigen-binding fragment of an antibody.

45. A method according to claim 21, wherein analyte binding reagents are one or more of a nucleic acid, a polynucleotide, a DNA, an RNA, an oligonucleotide, a protein-nucleic acid, an aptamer, a ribozyme, a nucleic acid-binding polyamide, a protein, a peptide, a polypeptide, a glycoprotein, an antibody, an antibody-derived polypeptide, a 10 receptor protein, a fusion protein, a murein, a lipid, a polysaccharide, a lectin, a ligand, an antigen or a hapten.

46. A method according to claim 21, wherein the array is used to carry out an immunoassay, a hybridization assay, a ligand-binding assay or receptor-binding assay, or a substrate analog affinity assay.

15 47. A method according to claim 21, wherein binding to the analyte binding reagents is detected using radioactivity, fluorescence, phosphorescence or chemiluminescence.

add A1

add C10

add B11